Giovanni Pantaleo

PhD Student

Personal Data

Date of birth 16 April 1997

Giovanni Pantaleo received a Bachelor Degree in Geological Sciences in 2019 from the University of Torino and a Master degree in Geoscience, curriculum Geophysics from University of Trieste in 2022. He is completing the PhD program in Earth science, Fluid dynamics and Mathematics. Main research interests are in the characterization and monitoring of CO_2 and H_2 storage reservoirs through physics-driven, and data-driven (AI) methods. He is particularly focused on the processing, inversion and interpretation tasks of seismic and EM data. He is PI of one project of the Italian HPC with access on HPC systems Galileo100, and Leonardo. He was taking part in several national and international scientific expeditions in Svalbard, Norway (2024), and as PI in Svelvik, Norway (2025) leading the geophysical campaign.

Education and Training

Nov 2022 - ongoing (until 31th Oct 2025) **PhD student in Earth Science, Fluid-Dynamics and Mathematics**, *University of Trieste*, Italy
Reservoir Characterization and Monitoring for Subsurface Storage using Deep Learning Tools.
Advisors: Prof. Michele Pipan (UniTs), Prof. Emanuele Forte (UniTs)

Feb 2024 - Apr 2024 **Course in Arctic Seismic Exploration**, *UNIS*, Svalbard, Norway
Acquisition, processing, and interpretation of geophysical data in Arctic environments, with a focus on monitoring subsurface fluid flow. Advisor: Prof. Tor Arne Johansen (UiB).

Apr 2023 - Aug 2023 **PhD trainee**, *GeoNeurale - Wavefields*, Munich, Germany
Research period focused on developing AI-based geophysical solutions for optimizing deep geothermal energy production.

Sep 2021 - Jan 2022 **Erasmus Traineeship**, *NTNU*, Trondheim, Norway
Research work and master's thesis writing at IGP (Department of Geosciences and Petroleum).
Advisors: Prof. Kenneth Duffaut (NTNU), Prof. Michele Pipan (UniTs)

Nov 2019 - Mar 2022 **Master's degree in Geosciences, curriculum Geophysics**, *University of Trieste*, Italy
Thesis title: Evaluation of seismic imaging challenges within the Utsira Formation and their effects on CO_2 plume based on 4D seismic in the Sleipner storage site, North Sea.
Final degree mark: 110/110 L.
Advisors: Prof. Michele Pipan (UniTs), Prof. Kenneth Duffaut (NTNU)

Oct 2016 - Oct 2019 **Bachelor's degree in Geological Sciences**, *University of Torino*, Italy
Thesis title: Paleomagnetic characterization of Pietre Cotte obsidianaceous flow, Vulcano (Lipari).
Final degree mark: 95/110.
Advisor: Prof. Elena Zanella (UniTo)

Work experience

May 2025 - Jun 2025 **P.I.**, *SINTEF - Svelvik CO_2 Field Lab*, Norway
Principal Investigator of SBEM project (Svelvik Borehole Electromagnetic Monitoring) carried out at the Svelvik CO_2 Field Lab (Verket, Norway). Leading a geophysical campaign combining seismic and electromagnetic methods to monitor subsurface CO_2 injection and detect leakage at the Svelvik CO_2 Field Lab.

Feb 2025 **P.I. Cineca-HPC**
Principal Investigator of one HPC project on Cineca G100 and Leonardo.

Feb 2025 - Jul 2025 **University Tutor**, *University of Trieste*, Italy
Supplementary teaching activities for the master's course *Geophysical Data Acquisition and Processing Laboratory*.

Feb 2024 - July 2024 **University Tutor**, *University of Trieste*, Italy
Supplementary teaching activities (ADI) for the bachelor's course *Seismic laboratory for geotechnics.*.

Oct 2018 - July 2019 **University Tutor**, *University of Torino*, Italy
Tutoring activities for guidance of bachelor's degree students.

Talks given to international conferences

Sep 2025 **Speaker at WCCUS**, *Bergen*, Norway
Enhancing early CO2 leakage detection using pre-trained deep learning models.
Authors: **G. Pantaleo**, M. Pipan

Aug 2025 **Speaker at IMAGE25**, *Houston*, Texas
Frequency-dependent seismic analysis for hydrogen storage in porous media.
Authors: **G. Pantaleo**, M. Pipan

May 2025 **Speaker at EGU25**, *Vienna*, Austria
Assessment of a deep learning framework for time-lapse seismic monitoring.
Authors: **G. Pantaleo**, M. Pipan

Feb 2025 **Speaker at 43° GNGTS**, *Bologna*, Italy
Optimization of rock-physics inversion via FWI and deep learning tools.
Authors: **G. Pantaleo**, M. Pipan

Nov 2024 **Speaker at GET2024**, *Rotterdam*, The Netherlands
Monitoring elastic parameters changes during underground hydrogen storage using rock-physics parametrized FWI.
Authors: **G. Pantaleo**, G. Roncoroni, M. Pipan

Nov 2023 **Speaker at PeGe2023**, *Porto*, Portugal
Application of Deep Learning in the estimation of CO_2 Saturation Maps.
Authors: **G. Pantaleo**, A. Molossi, M. Pipan

Oct 2023 **Poster at CO_2GeoNet**, *Venice*, Italy
Prediction of CO_2 saturation maps using U-shaped convolutional neural network.
Authors: **G. Pantaleo**, A. Molossi, M. Pipan

Scientific pubblications

2025 **Enhancing early CO_2 leakage detection using pre-trained deep learning models**
G. Pantaleo, M. Pipan.
World Carbon Capture Utilisation and Storage Conference (WCCUS). DOI

2025 **Frequency-dependent seismic analysis for hydrogen storage in porous media**
G. Pantaleo, M. Pipan.
International Meeting for Applied Geoscience and Energy (IMAGE25). DOI

2025 **Assessment of a deep learning framework for time-lapse seismic monitoring.**
G. Pantaleo, M. Pipan.
EGU General Assembly 2025 (EGU25). DOI

2024 **Monitoring elastic parameters changes during underground hydrogen storage using rock-physics parametrized FWI.**
G. Pantaleo, G. Roncoroni, M. Pipan.
Fifth EAGE Global Energy Transition Conference and Exhibition (GET2024). DOI

2024 **Estimation of CO_2 saturation maps from synthetic seismic data using a deep-learning method with a multi-scale approach.**
G. Pantaleo, A. Molossi, M. Pipan.
Geoenergy, 2(1). DOI

2023 **Application of Deep Learning in the Estimation of CO_2 Saturation Maps.**
G. Pantaleo, A. Molossi, M. Pipan.
Fifth EAGE Conference on Petroleum Geostatistics (PeGe2023). DOI

Language skills

Italian	native language
English	B2

Software skills

Software	Petrel, Shearwater Reveal, QGis, Office package
Languages	Python, Matlab, LaTeX, Linux

Trieste, 01 October 2025

Autorizzo il trattamento dei dati personali nelle modalità previste dal Regolamento UE 2016/679.